

THE
IMAGE
SYSTEM

USER'S GUIDE

THE IMAGE SYSTEM

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ABOUT THIS GUIDE

This guide is split into four sections. Section 1 introduces you to the basic techniques associated with operating the Image System and goes on to take you step by step through an exercise in which you will create a picture using some of the commands available on the Image System.

Section 2 provides a comprehensive reference to all the commands available and tells you everything you need to know to use them.

Section 3 provides some hints and tips on drawing along with some ideas for things to do.

Section 4 explains how to use the picture printing routine in conjunction with basic programs in order to control the pictures you have produced with the Image System.

When you begin working with the Image System we strongly recommend that you read section 1 and work through the step by step exercise in order to familiarise yourself with the basic principles behind operating the program.

A NOTE ON CONVENTIONS

The following notational conventions are used throughout this manual:—

[] Square brackets are used to indicate that a key on the keyboard should be pressed, e.g.: [ENTER].

“ ” Quotation marks indicate either text that appears as a prompt / error message or that the characters within them should be entered exactly as shown, for example when providing the number of a picture one wishes to view “17”.

CAPS Capital letters are used to indicate Image System messages and references to Image System commands, e.g.: VIEW PICTURE. Capitals are also used occasionally to provide emphasis.

SECTION 1

GETTING STARTED

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INTRODUCTION

The Image System is a painting and special effects package which allows you to create and manipulate pictures on the screen of your Amstrad.

The Image System differs from other painting packages commonly available in that in addition to the usual facilities provided for drawing, it also includes a number of sophisticated features, including the ability to translate, scale and rotate any picture, thereby opening up a whole new dimension in home computer art.

When you buy The Image System you also get a facility which will allow you to manipulate the pictures you have produced from basic.

The Image System is therefore a powerful tool for both artist and programmer.

The possibilities are many, from producing photographs or slides of computer graphic artwork to creating the graphics for games programs and visual displays you can even use the Image System to design your own clothes, it's up to you. Have fun!

LOADING INSTRUCTIONS

To load the Image System:-

1. Re-set the CPC 464 by holding down: [CTRL] and [SHIFT] and then pressing [TAB].
2. Place the cassette into the recorder and ensure that it is rewound to the beginning of Side A.
3. Hold down: [CTRL] and Press: [ENTER].
The message "Press PLAY then any key:" will appear.
4. Press PLAY followed by any key as instructed and program will load and start without further intervention.
 - i) If you have a disc machine, place the Image System disc in the drive with the A side uppermost, then simply type "RUN "IMSYS.V2"".

When The Image System has loaded, the screen will clear and the drawing menu will appear.

NOTE: If you intend to follow the step by step course and are using cassette do NOT rewind the tape after the program has loaded.

1.3 THE DRAWING MENU

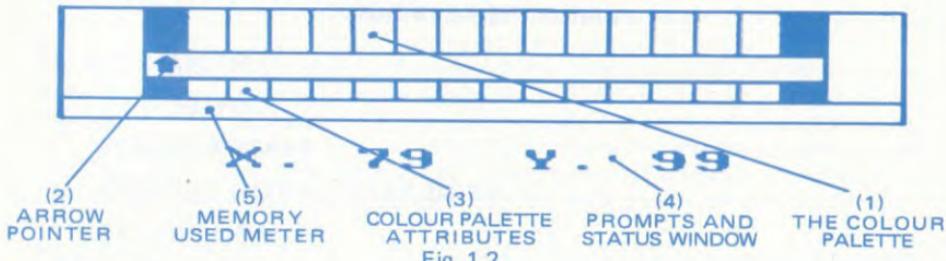


Fig. 1.2

The Drawing menu is the menu from which most commands are accessed and is the menu to which you will return after using the various commands supported by The Image System. Figure 1.2 shows the Drawing Menu and labels the various parts.

Their functions are as follows:-

1. **THE COLOUR PALETTE:** The sixteen blocks of the Colour Palette display the selection of colours with which you may draw. Any of these 16 blocks may be set to any of the 27 colours available on the Amstrad (see: **SELECT COLOUR PALETTE**). Users familiar with Locomotive Basic (TM) may note that the leftmost block is set to INK \emptyset and those to its right to INKS 1, 2, 3 etc through to INK 15 in the rightmost block. This numbering convention, (\emptyset -15) is used throughout the text when referring to the Colour Palette blocks.
2. **THE ARROW POINTER:** The Arrow Pointer indicates the current drawing colour and is used to select colours from the Colour Palette when using some commands. When the program starts the Arrow Pointer is situated at the left hand side of the drawing Menu pointing to the first Colour Palette block.
3. **THE COLOUR PALETTE ATTRIBUTES:** This strip of coloured blocks which lies below the Colour Palette indicates any attribute which is currently associated with a colour in the Colour Palette. Logically enough, a Colour Palette Attribute block applies to the Colour Palette block immediately above it.

The nature of the Colour Attributes and their use is described in **DEFINE COLOUR FILTERS** and **DEFINE TRANSPARENT COLOURS**.

4. **THE PROMPTS AND STATUS WINDOW:** This is where Prompts and Status information relating to the use of various commands is displayed.

During drawing, this area displays the current X and Y co-ordinates of the drawing cursor, (\emptyset , \emptyset is the dot in the bottom lefthand corner of the screen).

5. **THE MEMORY USED METER:** This shows the amount of memory you have used out of the total available for storing pictures. The meter behaves like a fuel gauge, a dark line extending from left to right as you fill the memory with pictures.

USING THE KEYBOARD

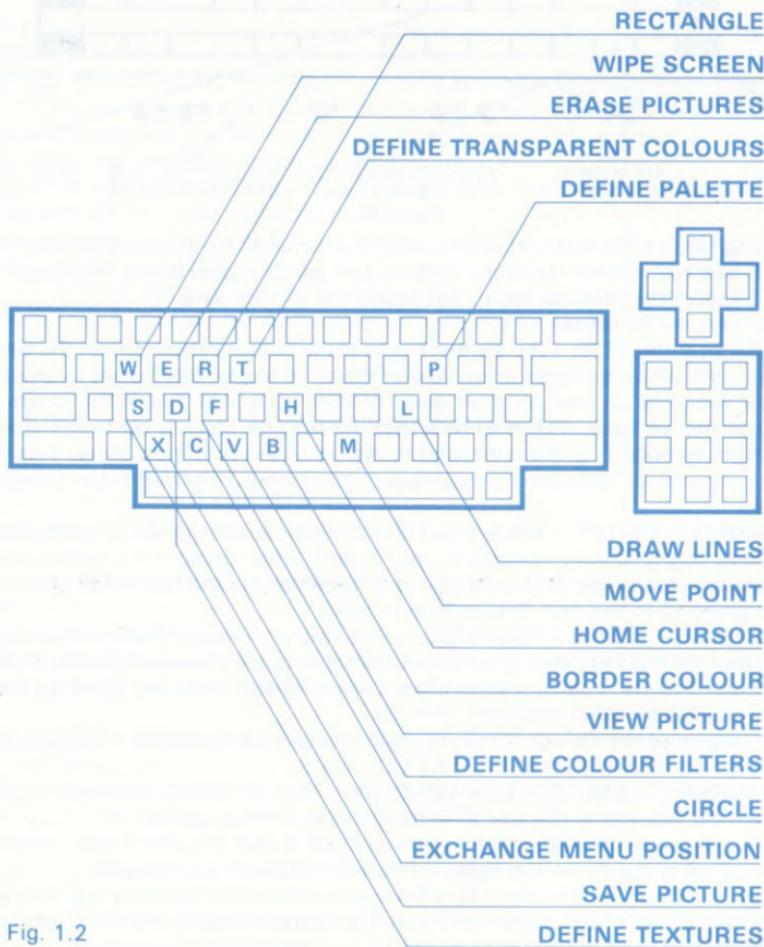


Fig. 1.2

The keyboard is used to control all the operations carried out on The Image System. Because of this, special attention has been paid to the layout of keys and the way in which they are used in order to make operations such as drawing colour as quick and simple as possible. All the keys used in The Image System are shown in Fig. 1.2.

Wherever possible information is displayed on the screen to indicate what is happening, allowing you to keep your eyes on the screen and thus minimising the disruption caused by looking away at the keyboard. To this end, the cursor is always moved by pressing the cursor keys and commands are accessed with simple and easy to remember single key presses.

When you begin using The Image System, to ensure that the keys most frequently used are within easy reach, it is recommended that you place your hands on the keyboard as follows:-

Place the palm of your right hand on the front edge of the keyboard opposite the numeric key pad.

Place the palm of your left hand on the front edge of the keyboard opposite the left hand side of the space bar.

In this position you should find that the cursor keys and the number keys 1 - 8 which are used to change the colour are within easy reach and with a little practice you should find that you can move the cursor and change the colour without looking at the keyboard.

Finally, don't forget your thumb! If you find moving your left hand on to the left hand shift key awkward when moving the cursor quickly, or changing the drawing colour, use the thumb of your right hand to hold down the right hand shift key.

1.5

MOVING THE CURSOR

The drawing cursor is moved by pressing one of the four Arrow Keys located above the numeric key pad. Pressing the keys on their own will move the cursor one dot at a time. Holding down: [SHIFT] and pressing these keys will move the cursor 10 dots at a time.

1.6

DRAWING WITH THE CURSOR

The dot at the cursor position may be set to the current drawing colour by pressing either [CAPS LOCK] or [COPY]. You may also set dots as you move the cursor by holding down: [CAPS LOCK] whilst pressing the Cursor Keys.

CHANGING THE DRAWING COLOUR

The Drawing Colour is changed by pressing one of the Number Keys (1 - 8). If you press [1] the Arrow Pointer will move to the leftmost Colour Palette block, (block \emptyset). If you press [2] the Arrow Pointer will move to the block to its right, (block 1) and so on up to block 7. To gain access to the other 8 colours, (Palette blocks 8 - 15) hold down: [SHIFT] and press the keys 1 - 8.

The method of relating each of the number keys [1] - [8] to the Colour Palette blocks has been adopted since it allows you to change colours quickly and independently of the use of any of the Cursor Keys. There is no connection between the number on the keys used and the number of the Colour Palette blocks associated with them.

Change the drawing colour by running your fingers across these keys whilst watching the Arrow Pointer NOT the keyboard. The Arrow pointer will always point to the colour you have selected.

FILLING AREAS

Areas of the screen may be filled / flooded with colour by moving the cursor to a point within the area to be filled and then holding down [SHIFT] and pressing [COPY]. NOTE the area to be filled must be completely enclosed areas/dots/continuous lines of another colour or colours. If the area is not completely enclosed, the filling process will "leak out" and continue, possibly ruining your masterpiece. If this does happen you can stop the fill by pressing [TAB].

A STEP BY STEP EXERCISE

Having loaded The Image System and familiarised yourself with some of its basic operations you are now ready to produce a picture. The following pages guide you step by step through the process of creating a picture and introduce you to some of the facilities available on The Image System.

To make things a little easier we have provided you with a number of pictures already drawn for you to use. These pictures are stored on the cassette tape just after the main program.

The first thing we are going to do is load the pictures stored on the tape/disc into the program so that they can be used in the exercise. At the end of the exercise you will be shown how to store the picture you have produced back onto tape/disc. In this way you can build up a collection of computer graphic images for use in future compositions and transfer to other media as described in the Useful Techniques And Things To Do section.

Ensure that the program is in displaying the Drawing Menu and ready to accept commands. None of the commands/facilities described so far should leave you in this state, however, if you have been adventurous or got lost you will be pleased to hear that you can always get back to the Drawing Menu from any command by pressing [TAB].

Press: [TAB] a few times to ensure that the program is ready to accept commands.

If you are using a cassette ensure that side A of the program cassette is in the datacorder and that the [PLAY] key is down.

Hold down: [CTRL] and Press:[L].

The message: "LOAD", "SCREEN OR PICTURES?" will be displayed in the Status Window.

Press "P" and the prompt "FILENAME" will be displayed.

Type: "PIXIE" and Press: [ENTER]. (This is the filename of the pictures you are going to load).

If you have a disc System the pictures will now load, otherwise the prompt: "Press PLAY then any key:" will appear in the Status Window.

Press any key to begin loading the pictures.

When the pictures have loaded we are going to WIPE the screen. This will remove any marks you may have left whilst experimenting with the drawing and painting functions and will set up a suitable background colour for the pictures we are going to draw.

Press: [W].

The message: "CHOOSE COLOUR FOR WIPE SCREEN" appears in the Status Window.

Using the right and left Cursor Keys move the Arrow Pointer until it points to the white Colour Palette Block.

Press: [COPY].

The screen will be cleared to white and should appear as in fig. 1.3.

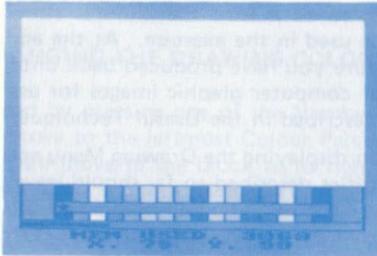


Fig. 1.3

We are now going to print one of the pictures you loaded from tape onto the screen using the **VIEW** command.

Press: [V].

The message: "VIEW PICTURE NO." appears in the Status Window.

Press: [1] followed by [ENTER].

The Drawing Menu disappears and the View Picture Menu appears in its place. A large flashing rectangle is also visible (the View Picture Cursor) and this indicates the outline of the picture you are about to print.

Press: [COPY].

A picture will appear on the screen, as in fig. 1.4.



Fig. 1.4

You can now colour in the picture using the **FILL** command.

Select a colour with the Arrow Pointer, then move the cursor inside the area you want to fill.

Hold down: [SHIFT] and press: [COPY].

You can continue filling as long as you like, if you wish to change a colour, simply select a new colour and then fill in over the old colour with the new one.

Having filled in your picture, you would normally save it using the **SAVE PICTURE** command, however, for this exercise there is already a filled in picture prepared for you.

Press: [V] and then type "2" in response to the prompt followed by [ENTER].

When the View Picture Cursor appears press: [COPY].

The new picture which appears on the screen although mostly filled in, still lacks any colour on the arms and face. Since there is at present no suitable colour for the arms or face in the Colour Palette. We will now change one of the existing colours using the **DEFINE COLOUR PALETTE** command.

Press: [P].

The message "**DEFINE PALETTE**" appears in the Status Window and under this the number of the Palette Block the Arrow Pointer points to and the code number of the colour the block is set to.

Using the right and left Cursor Keys move the Arrow Pointer to the Palette block number 6, as shown in fig. 1.5. This block is currently set to colour 19 and we are going to change it to colour 16 which happens to be a flesh pink.



Fig. 1.5

Hold down: [SHIFT] and use the left and right Cursor Keys to adjust the colour code number until it reads 16 as in fig. 1.6.



Fig. 1.6

Press: [TAB] to leave the DEFINE COLOUR PALETTE command.

Now set the Drawing Colour to the colour you have just created and fill in the arms and face.

Having done this we are now ready to save the completed picture using the SAVE PICTURE command.

Press: [S] .

The message "SAVE PICTURE" appears in the Status Window and 2 lines, the Save Picture Cursor, appear. Move the lines using the Arrow Keys, until they lie just over the left hand and lowermost edges of the picture, (co-ordinates X = 44, Y = 63) as in fig. 1.7.

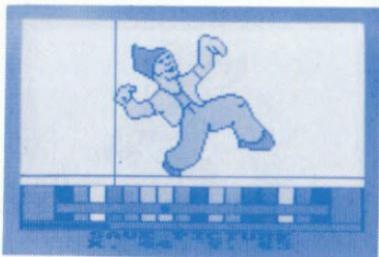


Fig. 1.7

Press: [COPY] .

Using the Arrow Keys, move the lines until they lie just over the opposite two edges of the picture, (co-ordinates X = 118, Y = 188) as in fig. 1.8.

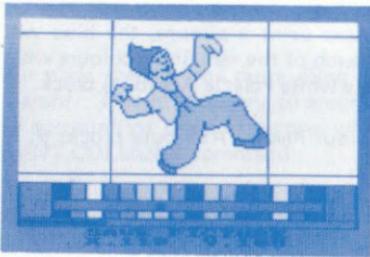


Fig. 1.8

Press: [COPY].

There will be a short delay whilst the picture is stored. We are now going to use our new picture to produce a shadow relief effect. To do this we must use the **DEFINE COLOUR FILTERS** command to change every colour in the original to blue, in order to create a blue shadow for the final picture.

Press: [F].

The message "**DEFINE COLOUR FILTERS**" appears in the Status Window. Using the right and left Cursor Keys, move the Arrow Pointer to the centremost of the three blue Palette Blocks, as shown in fig.1.9.



Fig. 1.9

Press: [COPY].

You will notice that the Arrow Pointer inverts, indicating that you have selected the colour and are now ready to place it in a Colour Palette Attribute block. Using the left and right Cursor Keys, move the Arrow Pointer until it lies below one of the colours appearing in the original picture.

Press: [COPY].

The blue colour you selected will be transferred into the Colour Palette Attribute block, indicating that when you next print a picture, the blue will replace the original colour. Move the Arrow Pointer to each of the remaining colours which appear in the picture, there is no need to place blue in the white Palette Attribute block.

When you have finished, Colour Palette Attribute blocks \emptyset , 3, 4, 5 and 6 should all be set to blue.

Press: [TAB] twice to leave the DEFINE COLOUR FILTERS command.

We are now ready to print the blue shadow.

Use the VIEW PICTURE command to view picture number 3.

You should now have a blue picture on a white background as in fig. 1.10.

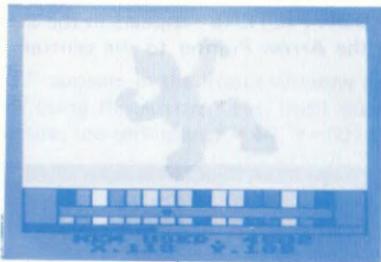


Fig. 1.10

Now we are going to draw the original multi-coloured pixie over the top of the blue shadow, we will however move it slightly to the right and up from its original position in order to achieve our shadow relief effect.

To ensure that when we print the pixie it appears in its original colours and not as a blue shadow we must change Colour Palette Attribute blocks \emptyset , 3, 4, 5 6 back to their original colours.

Press: [F].

Move the Arrow Pointer to each of the five colours in turn and reset the Colour Palette Attribute blocks to their original colours by using the sequence: [COPY] [COPY] [TAB]

at each Palette block. When you have finished, press: [TAB] to leave the DEFINE COLOUR FILTERS command.

Before we print the full colour pixie there is one more thing we must do, and that is to set the colour white to be transparent. This is necessary to ensure that the blue shadow is not totally obscured by the white surround of the new picture when it is printed. To do this, use the DEFINE TRANSPARENT COLOURS command.

Press: [T].

The message: "DEFINE TRANSPARENT COLOURS" appears.

Move the Arrow Pointer using the left and right Cursor Keys until it points to the third (white) Colour Palette block.

Press: [COPY].

A "T" will appear in the Colour Palette Attribute block indicating that the colour above it is now set to be transparent as shown in fig.1.11.



Fig. 1.11

Press: [TAB] to leave the DEFINE TRANSPARENT COLOURS command.

Now we are ready to view the full colour pixie.

Press: [V] then "3" followed by [ENTER].

The View Frame Cursor should appear exactly in register with the blue shadow as in fig.1.12.



Fig. 1.12

We want to offset the picture from the shadow so use the Cursor Keys to move it up and to the right slightly, (about 6 steps up and 2 to the right) as shown in fig.1.13.



Fig. 1.13

Press: [COPY].

The full colour pixie is printed and the overall composition should appear as in fig.1.14.



Fig. 1.14

You can now save this picture using the SAVE PICTURE command.

Press: [S].

Move the cursor lines by means of the Cursor Keys until they lie over two edges of the picture as shown in fig.1.15.

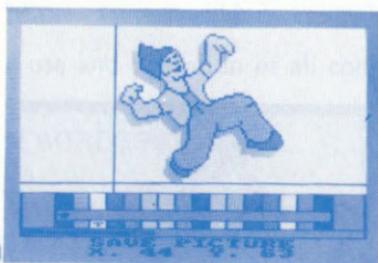


Fig. 1.15

Press: [COPY].

Using the Cursor Keys, move the two lines until they lie over the opposite two edges of the picture as in fig.1.16.



Fig. 1.16

Press: [COPY].

There will be a short delay whilst the picture is being stored. You can now file all four pictures on tape or disk if you wish, so that they may be reloaded and re-used at a later date.

Firstly place a blank cassette/disk in the drive.

Hold down: [CTRL] and press: [F].

The message "FILE", "SCREEN OR PICTURES?" will be displayed in the Status Window.

Press: [P] and the prompt "FILENAME" will appear.

Type in your filename, for example "PIXIE" as shown in fig.1.17, followed by [ENTER].

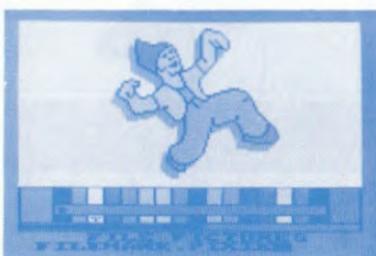


Fig. 1.17

If you are using disk, the pictures will now be saved, if you are using cassette the prompt "Press REC and PLAY then any key" will be displayed.

Press: [REC] and [PLAY] followed by any key as instructed and the four pictures will now be recorded.

The exercise you have just carried out has introduced you to the basic principles of creating pictures with The Image System. However the techniques we used to create our picture were only a few of many possible. We have not for instance touched upon the many effects possible with the use of such facilities as rotation. The beauty of The Image System is that it allows you to modify a basic image in a large number of ways. As such it is an ideal medium for experimentation and exploration.

It is now up to you to build upon the small repertoire of techniques you have just learned in order to create designs of your own. Above all don't be afraid to experiment since experimentation is often the most effective way of discovering new techniques and ideas. You will find detailed explanations of all the commands you have just used and more in the Command Reference Section, along with some helpful hints and ideas for things to do, in section 3.

SECTION 2

REFERENCE TO COMMANDS

CONTENTS

This section describes the use and operation of all commands not described in pages 6-20.

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[B] : DEFINE BORDER COLOUR

Description: Sets the border colour to one of the 28 available.

OPERATING SEQUENCE

USER ACTION

1. Press: [B]
2. Press the left Cursor Key to decrease the border colour code and the right Cursor Key to increase the border colour code.

EFFECT

The message "DEFINE BORDER" appears in the Status Window and the current border colour code is shown below this.

The border colour changes and the current colour code is displayed in the Status Window.

When you have selected the colour you require Press: ESCAPE to exit from this command.

[C] : CIRCLE

Description: Draws a circle or ellipse in the current drawing colour. The circle/ellipse may be drawn in solid or outline form.

OPERATING SEQUENCE

USER ACTION

1. Press: [C]
2. Move the 2 lines with the Cursor Keys until they lie where you want 2 of the edges of the circle to come.
3. Press: [COPY]
4. Move the 2 lines with the Cursor Keys until they lie where you want the opposite 2 edges of the circle to come.

EFFECT

The word "CIRCLE" appears in the Status Window and 2 lines (the circle definition cursors) appear.

The lines will move and you will see that 2 lines have been left where you pressed COPY.

When you have moved the lines to the desired position:-

Press: COPY to draw an outline circle/ellipse or:-

Hold down: [SHIFT] and Press: [COPY] to draw a solid circle/ellipse.

[D] : DEFINE TEXTURE/S

Description: Allows the user to create his or her own textures which may then be used with the texture fill command.

A Texture can be any 16 x 32 pixel area drawn in any of the 16 colours available.

Before entering DEFINE TEXTURE/S the new texture design should be placed in the top left hand corner of the screen so that it occupies the uppermost 32 lines and leftmost 16 dots of the screen.

OPERATING SEQUENCE

USER ACTION	EFFECT
1. Press: [D]	The message "DEFINE TEXTURES" appears in the Status Window and below this is displayed the number of the current texture.
2. Press the right Cursor Key to increment the current texture and the left Cursor Key to decrement the current texture. When you have selected the texture which you wish to replace with the new one in the top left of the screen:	The current texture number changes to reflect the texture displayed.
3. Press: [COPY]	The current texture will be replaced with the one in the top left hand corner of the screen.

Press: [TAB] to leave the "DEFINE TEXTURES" command.

NOTE: To fill any complex area with a texture move the cursor onto a dot within the area and then hold down: [CTRL] and press: [COPY].

The area will be filled with the current texture in a similar manner to that in which an ordinary fill operates.

NB: It is only possible to use the texture fill facility on areas of a colour other than any of the colours which appear in the current texture. If you attempt to texture fill an area of the same colour as any of the colours in the current texture the command may fail in which case you must press: [TAB] in order to return to the drawing menu.

[E]: ERASE PICTURES

Description: Allows the user to erase one or more of the pictures previously stored using the SAVE PICTURE command. ERASE PICTURES should be used with caution since once a picture has been erased it is deleted from the computer's memory and cannot be retrieved.

Erasing a picture causes all pictures with numbers greater than that of the picture erased to be moved down and renumbered appropriately.

EXAMPLE:-

10 pictures have been stored.

The user erases pictures number 6 and 7.

After erasure 8 pictures are stored numbered consecutively 1-8.

OPERATING SEQUENCE

USER ACTION

EFFECT

1. Press: [E]

If you want to delete more than one picture type in the number of the lowest picture you want to delete, followed by [ENTER].
2. Type in the number of the picture you want to delete followed by [ENTER]

If you want to delete more than one picture type in the number of the lowest picture you want to delete, followed by [ENTER].
3. If you want to delete a single picture type in the number of the picture again followed by [ENTER] or simply press [ENTER] on its own.

If you want to delete a number of pictures type in the number of the highest picture you want to delete followed by [ENTER].

The message "ERASE PICTURE/S" appears in the Status Window and below this is displayed the prompt: FROM NO.".

The prompt: "TO NO." is displayed in the Status Window.

The picture or pictures are deleted from memory.

NOTE: You may abort the ERASE PICTURES command at any point before the final press of [ENTER] by pressing [TAB] which will take you back to the previous step.

[F]: DEFINE COLOUR FILTERS

Description: Allows you to choose the colours in which a picture will be printed. Putting a filter on a Colour (the Source colour) will cause that colour to be converted to the colour displayed in the Attribute block below it, (the Destination colour) when you print a picture.

One use of the DEFINE COLOUR FILTERS command is in producing the shadows for shadow relief effects, where all colours in the original are filtered to become black on printing.

NOTE: Filtering does not effect the transparency option which applies to the original Source colour and NOT the destination colour in the copy. If you put a filter on a colour which is defined to be transparent, it will NOT appear in the copy.

OPERATING SEQUENCE

USER ACTION	EFFECT
1. Press: [F]	The message: "DEFINE COLOUR FILTERS" appears in the Status Window.
2. Move the Arrow Pointer using the Cursor Keys to the Destination colour.	
3. Press: [COPY]	The Arrow Pointer will point down, indicating that you are now ready to put the Destination colour you have chosen into a Palette Attribute Block.
4. Move the Arrow Pointer using the Cursor Keys to the Source colour.	
5. Press: [COPY]	The Attribute block below the Arrow Pointer changes to the Destination colour you selected indicating that the colour in the Colour Palette block above it will be converted to that colour when it is printed.

After you have pressed [COPY] you may move the Arrow Pointer to another Attribute Block and place the previously selected Destination colour in this and as many other Attribute Blocks as you wish. When you have finished with the colour, press [ESCAPE] once and the Arrow Pointer will point upwards again to indicate that you may now select Destination colour following the same procedure as before.

To exit the command after selecting a Destination colour press [TAB] twice.

To exit the command if a Destination colour is not currently selected press [TAB] once.

[H]: HOME CURSOR

Description: Homes (moves) the Drawing cursor to the centre of the screen. (Useful if you have lost track of its position or simply wish to move to the centre of the screen quickly).

OPERATING SEQUENCE

USER ACTION	EFFECT
Press: [H]	The cursor moves to the centre of the screen.

[L]: DRAW LINES

Description: Allows the user to draw straight lines in the Current Drawing Colour.

OPERATING SEQUENCE

USER ACTION	EFFECT
1. Press: [L]	The message: "DRAW LINES" appears in the Status Window.
2. Using the Cursor Keys move the cursor to the place where you want the line to begin.	
3. Press: [COPY]	
4. Using the Cursor Keys move the cursor to the place where you want the line to end.	As the cursor moves a line is drawn between it and the point at which you pressed COPY.
5. Press: [COPY]	The line is drawn in the current drawing colour.

You may now move the cursor to a new position in which case a line will be drawn between it and the position at which you pressed [COPY] in step 5. Continuing in this way you may repeat steps 4 and 5 and so produce a long line made up of many short straight lines.

If you wish to move the cursor to a new position without drawing a line between it and the old position press [ESCAPE] once. This will place you back at step 2.

To exit this command completely, press [TAB] once if you are not currently operating beyond step 2. Press [TAB] twice if you are operating at step 3 or above.

[P]: DEFINE PALETTE

Description: Allows you to set any of the 16 blocks of the Colour Palette to any of the 28 colours available on the Amstrad. The Colour Palette displays the 16 colours which are available for drawing at any one time. Those familiar with Locomotive Basic (TM) may note that the leftmost block is set to INK 0 and those to its right to INK 1, 2, 3, etc. through to INK 15 in the rightmost block.

CAUTIONARY NOTE: The rightmost pair of Palette Blocks are used for the menu background and text prompt colours. Users are therefore advised to avoid changing these, since this may effect the legibility of the menu. You may change these colours if you wish, but since it is quite possible to set all the Palette Blocks to the same colour you may find yourself with black text on a black background, which would be confusing to say the least!

If you do get into this situation, don't panic, just re-define the Palette colours.

Remember: [TAB] exits from any command, after which you simply have to press [P] to enter the DEFINE PALETTE COLOURS command, after which even working blind you should be able to reset the colours.

OPERATING SEQUENCE

USER ACTION

1. Press: [P]

2. Now move the Arrow Pointer using the Cursor Keys so that it points to the Palette block you wish to change.

3. Hold down: [SHIFT] and Press:-
The right Cursor Key to increase the number.

The left Cursor Key to decrease the colour number.

EFFECT

The message: "DEFINE PALETTE" appears in the Status Window, and below this the number of the Palette Block the Arrow Pointer points to along with the code number of the colour in the block.

The numbers in the Status Window will change to reflect the number of the Palette Block the Arrow Pointer points to and the colour to which it is set.

The colour number the block is set to increase.

The colour number the block is set to decreases.

When you have set the required Palette Blocks to the required colours Press: [TAB] to exit the command.

[S] : SAVE PICTURE

Description: Allows any rectangular area of the screen to be stored in memory. Up to 255 pictures, as they are called, may be stored and later retrieved and printed at any angle or position using the VIEW command. Pictures must be at least 2 screen dots wide and 2 dots high in order to be saved.

OPERATING SEQUENCE

USER ACTION

EFFECT

1. Press: [S] The message: "SAVE PICTURE" is displayed in the Status Window and 2 lines (the picture saving cursors) appear.
2. Move the lines on to 2 edges of the area of the screen you want to save, using the Cursor Keys.
3. Press: [COPY]
4. Move the lines on to the remaining 2 edges of the area of the screen you want to save, using the Cursor Keys.
5. Press: [COPY] All the lines disappear and there is a short delay whilst the picture is stored.

[T] : DEFINE TRANSPARENT COLOURS

Description: Allows the user to specify which colours will be transparent (not drawn) when a picture is printed. When using transparent colours a "T" in a Colour Palette Attribute Block indicates that the colour in the Palette Block above it is transparent. This command may be used to get rid of the unwanted edges of pictures when producing interlocking patterns or shadow relief effects.

OPERATING SEQUENCE

USER ACTION

1. Press: [T]
The message: "DEFINE TRANSPARENT COLOURS" appears in the Status Window.
2. Move the Arrow Pointer to the Palette block of the colour you want to alter using the Cursor Keys.
3. Press: [COPY]
If there is no "T" in the Attribute Block then a "T" appears and the colour in the Palette Block above it is set to be transparent.
If there is a "T" in the Attribute Block then it disappears and the colour in the Palette Block above it is no longer transparent.

When you have set all the required colours to the desired state (Transparency ON or OFF) Press: [TAB] to exit the command.

[V]: VIEW PICTURE

Description: Allows you to view and print any stored picture. When viewing a picture, you are first presented with an outline representation of the picture, which may be SCALED, ROTATED and MOVED to any position on the screen before being printed. It is also possible to move any corner of the picture to any position on or off the screen with the MOVE command.

The colours in which a picture is printed may be changed from those in which it was saved (see DEFINE COLOUR FILTERS). Colours may also be defined as being transparent (see DEFINE TRANSPARENT COLOURS).

OPERATING SEQUENCE

USER ACTION

1. Press: [V]
The message: "VIEW PICTURE NO." is displayed in the Status Window.

2. Type in the number of the picture you wish to view followed by [ENTER].

The drawing menu disappears and a new one holding information about the picture being viewed is displayed. An outline of the picture being viewed is also displayed in the place where it was saved.

You may now manipulate the picture in a number of ways using the keys shown below. To move slowly, press the Cursor Keys on their own; to move quickly, hold down: [SHIFT] and press the Cursor Keys.

To TRANSLATE the picture. (Move up, down, left or right) press the Cursor Keys.

To ROTATE the picture:-

Press: [8] to rotate about the X axis one way.

Press: [5] to rotate about the X axis the other way.

Press: [7] to rotate about the Y axis one way.

Press: [9] to rotate about the Y axis the other way.

Press: [4] to rotate about the Z axis one way.

Press: [6] to rotate about the Z axis the other way.

To SCALE the picture:-

Press: [3] to increase the width of the picture.

Press: [1] to decrease the width of the picture.

Press: [2] to increase the height of the picture.

Press: [.] to decrease the height of the picture.

Press: [\emptyset] to move the picture towards you.

Press: [ENTER] to move the picture away from you.

To move the corners of the picture:-

Press: [M] (For details of moving corners, see: MOVE POINT).

[M] : MOVE POINT

Description: The MOVE POINT command is accessed from within the VIEW PICTURE command. MOVE POINT CAN ONLY BE ACCESSED FROM VIEW PICTURE and exiting from MOVE POINT will take you back to the View Picture Menu NOT the Drawing Menu. It is described here separately in the interests of clarity, however it should be thought of as a facility of the VIEW PICTURE command since it is only available after you have called up a picture with the VIEW PICTURE command.

OPERATING SEQUENCE

USER ACTION

EFFECT

1. Press: [M]
The message: "SELECT POINT" is displayed in the Status Window and the Move Point Cursor is displayed near the centre of the picture.
2. Move the Cursor on to the corner of the picture you want to move using the Cursor Keys.
Holding down: [SHIFT] whilst pressing the Cursor Keys will move the cursor quickly.
3. Press: [COPY]
If the cursor is close enough to the corner the message "HIT" appears in the Status Window and you may move the corner.
If the cursor is not close enough the message "MISSED" appears in the Status Window and you should move the cursor closer to the corner and try again.
4. Move the corner to its new position using the Cursor Keys.
5. Press: [COPY]
The message: "SELECT POINT" is displayed in the Status Window and the corner is now fixed in its new position.

You may now move the cursor independently of the corner and either select another point or Press: [TAB] to return to the VIEW PICTURE command.

NOTE: On returning to the VIEW PICTURE command you may move the picture around the screen (TRANSLATION) using the Cursor Keys before pressing [COPY] to print the picture. If you attempt to ROTATE, SCALE or change the distance of the picture it will revert to the condition it was in before you entered the MOVE POINT command.

[W] : WIPE SCREEN

Description: Wipes the entire screen in a colour chosen by the user.

OPERATING SEQUENCE

USER ACTION	EFFECT
1. Press: [W]	The message: "CHOOSE COLOUR FOR WIPE SCREEN" appears in the Status Window.
2. Move the Arrow Pointer using the Cursor Keys until it points to the required colour.	
3. Press: [COPY]	The screen is wiped in the colour chosen.

[X] : EXCHANGE MENU POSITION

Description: Changes the position of the drawing menu. When the Image System starts up, the menu is displayed at the bottom of the screen. However, to allow any area of the screen to be drawn upon, the menu may be moved to the top of the screen or switched off completely.

Pressing X cycles the menu through the sequence: Menu at top — Menu off — Menu at bottom.

When the menu is switched off, no prompts or status information is visible. However, if a command is selected which requires the use of the menu, then the menu is re-displayed whilst the command is in use. Upon exiting the command the screen will be returned to its previous condition along with any modifications which may have resulted from the use of the command.

OPERATING SEQUENCE

USER ACTION

Press: [X]

EFFECT

The menu cycles through the sequence:
Menu at top—Menu at bottom—Menu off.

[Z]: TOGGLE ZOOM WINDOW

Description: Switches the "ZOOM WINDOW" on or off.

OPERATING SEQUENCE

USER ACTION

1. Press: [Z]

EFFECT

If the ZOOM WINDOW is currently off it will be switched on.
If the ZOOM WINDOW is currently on it will be switched off.

[CTRL]: [D]: DISK

Description: Allows the user to select disk as the storage device used for loading and saving files.

OPERATING SEQUENCE

USER ACTION

1. Hold down: [CTRL] and Press [D]

EFFECT

Disk is selected as the current device and a disk icon is displayed at the right hand side of the Drawing Menu.

[CTRL]: [T]: TAPE

Description: Allows the user to select tape as the storage device for loading and saving files.

OPERATING SEQUENCE

USER ACTION

1. Hold down: [CTRL] and Press: [T]

EFFECT

Tape is selected as the current device and a cassette icon is displayed at the right hand side of the Drawing Menu.

[CTRL]: [F]: FILE PICTURES

Description: Allows the user to file on tape any pictures previously stored with the SAVE PICTURE command.

OPERATING SEQUENCE

USER ACTION

1. Hold down: [CTRL] and press: [F]

EFFECT

The message: "FILE PICTURES" appears in the Status Window and below this the prompt: "FILENAME".

2. Type in the name which you want to be used as a title for the file, followed by [ENTER].

NOTE: Filenames may be of any length to a maximum of 8 characters and may contain either letters or numbers. The computer will not allow you to type any illegal letters and not more than 8 in total.

3. Ensure that the cassette on which you wish to record the file has been wound to the position at which you wish to store the file and that the [REC] and [PLAY] keys have been pressed as instructed.
4. Press any key to begin recording the file.

The prompt: "Press REC and PLAY then any key:" is displayed in the Status Window.

[CTRL]: [L]: LOAD PICTURES

Description: Allows the user to load pictures previously drawn and saved to tape using the FILE PICTURES command.

OPERATING SEQUENCE

USER ACTION

1. Hold down:[CTRL] and press: [L]
2. Type in the name of the file of pictures you want to load followed by [ENTER].
3. Ensure that the cassette containing the file of pictures you require has been placed in the recorder and has been rewound to a position preceding the place where the file has been recorded and that the [PLAY] key has been pressed as instructed.
4. Press any key to begin loading the file.

EFFECT

The message: "LOAD PICTURES" appears in the Status Window and below this the prompt: "FILENAME".

The prompt: "Press PLAY then any key:" appears in the Status Window.

The standard CPC 464 cassette loading messages will be displayed in the Status Window and once found the pictures will be loaded.

COLOUR REFERENCE CHART

Descriptions of the colours available on your CPC 464 are shown below along with their code numbers.

0.....	BLACK	13.....	WHITE
1.....	BLUE	14.....	PASTEL BLUE
2.....	BRIGHT BLUE	15.....	ORANGE
3.....	RED	16.....	PINK
4.....	MAGENTA	17.....	PASTEL MAGENTA
5.....	MAUVE	18.....	BRIGHT CYAN
6.....	BRIGHT RED	19.....	SEA GREEN
7.....	PURPLE	20.....	BRIGHT CYAN
8.....	BRIGHT MAGENTA	21.....	LIME GREEN
9.....	GREEN	22.....	PASTEL GREEN
10.....	CYAN	23.....	PASTEL CYAN
11.....	SKY BLUE	24.....	BRIGHT YELLOW
12.....	YELLOW	25.....	PASTEL YELLOW
		26.....	BRIGHT WHITE

SECTION 3

USEFUL TECHNIQUES AND THINGS TO DO

CONTENTS

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3.1 INTRODUCTION

The Image System is a powerful tool capable of producing striking and sophisticated graphic displays on the screen of your Amstrad.

In addition to providing you with all the usual facilities for drawing and painting The Image System takes you a step further into the exciting world of 3D computer graphics allowing you to save any area of the screen which may then be moved, copied, rotated, scaled and even folded using the options available from the 'VIEW PICTURE' command.

With powerful facilities like these you can produce sophisticated effects like the ones used in pop videos and T.V. commercials, where a picture is shown spinning through space. Though your Amstrad doesn't have the power to do this in real time you can take any picture and re-position it in 3D space or even zoom and tilt it to make a surrealistic background for your compositions.

By using the "MOVE POINT" command you can even pick up and move any corner of the picture to any position on the screen thereby achieving many weird and wonderful effects by twisting your picture into seemingly impossible shapes.

With facilities like these the possibilities are virtually endless being limited only by your own imagination and creativity. However, your creative efforts do not have to end with the screen of your Amstrad. Some of the most interesting possibilities lie outside the computer in the combination of your computer generated designs with more conventional media, such as photography and needlework.

Working in this way, your computer takes on the role of a sketchbook for origination and experimentation. For example, you can use the DEFINE PALETTE COLOURS command to discover effective colour combinations before implementing them in the final medium.

This section provides information designed to aid you in the production of pictures along with a number of suggestions for further developments.

3.2 USEFUL TECHNIQUES

When we draw a picture using some conventional media e.g. pencil and paper we are able to move our hands freely across the paper and so can shape our image using the full range of our manual dexterity. Since we are unable to do this using the keyboard of the computer you are likely to find free-hand drawing of representative or non-geometric subjects difficult. Because of this we recommend that you first draw or trace the important features of your picture onto clear acetate film using a fine tipped marker pen. This may then be placed over the screen and held with sellotape. You can then trace the picture onto the screen using the Drawing Cursor. Don't forget the DRAW LINES command which can save you a lot of time when tracing outlines. Having drawn in the outlines of the key features you can then fill in using the FILL function and then add the fine detail.

Use a permanent (alcohol based) marker for best results which may be removed using methylated spirits when you have finished. Acetate film may be obtained from large stationers and art shops.

3.3 THINGS TO DO

* An additional file of pictures *

In addition to the file of pictures described in the step by step exercise pictures is provided on SIDE B of the cassette.

This is named "PICLIB1".

You may use these pictures in your own compositions since they have been supplied to ensure that you can begin work straight away.

Pixel Picture Systems waives copyright in respect of these three files of pictures and any composition arising from their use.

PHOTOGRAPHY

When you have created a picture you are particularly pleased with, you may like to take a photograph of it. Photographs of computer graphic images can be very striking if they are taken well and processed by a reliable laboratory.

Once you have a good image on film there are many possibilities, it could be enlarged and framed or reprinted to make attractive Christmas or greetings cards. There are even firms which will print your image onto a "T" shirt.

Taking photographs from your computer screen is not difficult though you should follow the procedures described below in order to obtain the best results.

1. Use a good camera. A 35mm SLR is ideal.
2. Use a shutter speed of 1/8th second or longer.
3. If possible use a long focal length (Telephoto) lens. This will help to minimise distortion and ensure that your image is rectilinear.
4. Make sure your camera is positioned opposite the centre of the screen and is well supported so that it does not shake. Use a cable release or the self-timer to actuate the shutter. You are unlikely to obtain good results if the camera is hand held.
5. Ensure there are no reflections visible on the screen of the monitor when viewed through the camera. The best way of doing this is by taking the photographs in a dark (preferably pitch black) room.

6. Try to ensure that the meter reading is not taken from the brightest or the dullest part of the picture but from a part of the image which represents a point half way between these extremes. You can do this by wiping the screen in the appropriate colour and taking a reading from this. It is also a good idea to take more than one exposure of each picture varying the exposure slightly over and under. In this way you can select the picture with the best colour balance before having further copies made.

SCREEN PRINTING

It may have occurred to you that many of the more abstract images/patterns you can produce using the Image System would make excellent textile designs. With the aid of photography and screen printing techniques you can transfer your designs on to material which could be made into highly original and exclusive garments. Only the basic principles are described here, consult one of the publications in the printing section of your local library for more detailed information on screen printing.

Basically screen printing is carried out by transferring printing ink onto the final medium e.g. paper or cloth through a screen of finely woven material. The screen is masked so as to bar ink from some areas whilst allowing it through onto others, in this way simple monochromatic designs may be readily produced. Multi-coloured designs may be produced by using a number of separate screens (one for each colour) which are supplied to the final medium in succession. The stencils for the screens may be produced by hand or photographically from a monochromatic positive or negative representing one of the colour components of the original.

If you do decide to produce a multi-coloured design don't forget that you can expose the negatives for each of the separate colour screens by using the SELECT COLOUR PALETTE command to switch out all of the colours except for the one required.

You may be able to gain access to silk screen printing equipment by enquiring at your local library or arts centre.

NEEDLEWORK AND WEAVING

Since all the images you create on the screen of your Amstrad are made up of small rectangular dots (pixels) they are ideally suited to being transferred to the media in the title. As was mentioned earlier you can use the Image System to create your design and work out the colours before transferring it to the final medium.

Perhaps the easiest and most common handicraft suitable for the transferral of computer graphic designs is knitting and with the help of the Image System you could soon be producing some highly fashionable if not avant garde sweaters.

To keep track of your place in the design you can move the picture to the bottom left-hand corner of the screen thus ensuring that your rows, and columns of stitches/weaving, etc. start from 1.

Don't forget that you can turn your picture around into any position you require using the VIEW PICTURE command.

SECTION 4

BASIC PROGRAMMER'S GUIDE

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4.1

INTRODUCTION

This section of the manual provides information relating to the use of the picture printing routine supplied on side B of the cassette.

These routines may be used to allow pictures you have created and saved to tape to be used in basic programs. Throughout this section it is assumed that the reader already has a working knowledge of Locomotive Basic (TM) and in particular an understanding of the CPC 464's graphics capabilities. If you are unfamiliar with any of the concepts introduced in this section e.g. Graphics Inks, Modes, and Cursors you will find a description of them in your CPC 464 User Instructions supplied with your computer.

The following facilities are provided by the picture printing routine:-

1. Draw any picture in any position.
2. Change any colour in the original to any other when the picture is printed.
3. Define any colour to be transparent and thus not be printed.

4.2

SETTING UP A BASIC PROGRAM

The picture printing routine occupies 216 Bytes of memory and before loading and using the routine you must reserve this amount of memory plus the amount used by the file or files of pictures which you intend to use. The length of a file of pictures is shown on the Drawing Menu as "MEM USED".

You can ascertain the highest byte of memory available on your machine by enquiring the value of HIMEM after a system reset. For example the highest available address on a standard CPC 464 is 43903 so if you are working on a CPC 464 subtract the combined length of your picture file/s and the picture printing routine from this and set HIMEM to the result using the MEMORY command. If you have any additional hardware/software on your system consult your documentation.

Once you have established the above information note the memory addresses of the Picture Printer and any files of pictures you intend to use and load them into memory using the basic LOAD command.

Example:

To load the Picture Printer at address 32914 Type:-

LOAD"PICDRAW",32914

Before commencing to print pictures you should ensure that the following statements are included in the initialisation section of your basic program:-

```
10 MODE 0
20 MEMORY *****
30 PICPRINT=*****
40 PICFILE=*****
50 DIM TCOL%(15),FCOL%(15)
60 FOR N% = 0 TO 15
70 TCOL%(N%) = 0
80 FCOL%(N%) = N%
90 NEXT N%
100 ORIGIN 0,0
110 MOVE 0,0
```

Note: Where you see ***** you should enter the values which you have calculated as described above. An explanation of the purpose of each line is given below.

10 MODE 0

Sets CPC 464 to mode 0. The Image System operates in Mode 0 and so in order for pictures to appear as they were drawn the computer must be set to mode 0.

20 MEMORY *****

Sets the value of the highest byte of memory used by basic and reserves memory space for the Picture Printer and picture files.

30 PICPRINT=*****

40 PICFILE=*****

Defines the variables PICPRINT and PICFILE to be equal to the addresses at which the Picture Printer and file of pictures are stored. This is done for the sake of convenience, making your programs more readable and easier to modify in the eventuality of you repositioning the Picture Printer routine or the file of pictures.

50 DIM TCOL%(15),FCOL%(15)

Dimensions the 2 integer arrays TCOL% and FCOL% which are used to control the transparency and colour filtration attributes of any pictures printed.

```
60 FOR N% = 0 TO 15
70 TCOL%(N%) = 0
80 FCOL%(N%) = N%
90 NEXT N%
```

Sets the contents of the 2 arrays to their default settings of transparency off on all colours and all colours to be filtered to their original colours.

```
100 ORIGIN 0,0
110 MOVE 0,0
```

Sets the Graphics Origin to the bottom left hand corner of the screen and moves the Graphics Cursor to 0,0. In this situation any pictures subsequently printed will appear in the place at which they were saved.

4.3

PRINTING AND MOVING PICTURES

The Picture Printer uses many of the Amstrad graphics routines and accordingly will be affected by such operations as changing the plotting mode and moving the Graphics Origin. This has been done to retain compatibility with the conventions of locomotive basic (TM) and means that the picture printing routine can be treated as any other graphics routine.

PRINTING PICTURES

In order to print a picture ensure that you have followed the steps outlined in section 2 and then simply issue a CALL to the Picture Printing routine each time you want to print a picture. The format of the CALL is shown in fig. 3.1 along with a description of the parameters.

(1)	(2)	(3)	(4)	(5)
CALL PICPRINT,	@TCOL%(0),	@FCOL%(0),	PICFILE,	PICREQUIRED%

Fig. 4.1

- (1) PICPRINT: The address of the Picture Printing routine.
- (2) @TCOL% (\emptyset) : This is a reference to the address of the first element of the array TCOL% used in defining transparent colours. The prefix "@" causes basic to return the ADDRESS of the element instead of its value and allows the Picture Printing routine to find the array. DON'T FORGET THE " (\emptyset) "!
- (3) @FCOL% (\emptyset) : A reference to the ADDRESS of the first element of the array FCOL% used in filtering colours. As with TCOL% DON'T FORGET THE " (\emptyset) "!
- (4) PICFILE: The address of the file of pictures which contains the picture you want to print.
- (5) PICREQUIRED%: The number of the picture you want to print.

NOTE: The variable names you use in your program are up to you however you must use integer arrays for TCOL% and FCOL%.

MOVING PICTURES

When a picture is saved using the SAVE PICTURE command its position relative to the Graphics Origin (bottom left-hand corner of the screen) is saved with it and when you print a picture from basic this information is used to work out where the picture will appear on the screen. As you might expect moving the Graphics Origin say 100 screen coordinates to the right will cause all pictures to be printed in a position 100 screen coordinates to the right of the position in which they were saved. Ultimately however the position in which a picture is actually printed depends not only on the position of the Graphics Origin but also on the position of the Graphics Cursor.

If you position the Graphics Cursor at \emptyset, \emptyset the picture will appear in the same position RELATIVE TO the Graphics Origin as that in which it was saved. Moving the Graphics Cursor relative to the Graphics Origin will cause the picture to be moved relative to the Graphics Origin.

If this sounds confusing, you can take consolation in the knowledge that the relationship between the picture, Graphics Cursor and Graphics Origin is exactly the same when using the Picture Printer as it is when using any Amstrad graphics command!

In essence:-

Moving the Graphics Cursor moves pictures relative to the Graphics Origin.

Moving the Graphics Origin moves all pictures and graphics commands relative to the screen.

Finally if in doubt set the Graphics Origin to \emptyset, \emptyset and move the Graphics Cursor to \emptyset, \emptyset .

The relationship between the picture Graphics Cursor and Graphics Origin is shown in fig. 4.2.

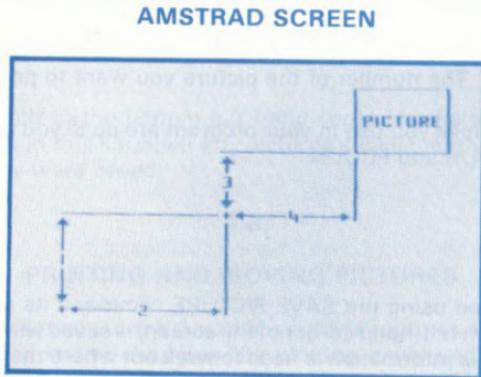


Fig. 4.2

- (1) X OFFSET OF GRAPHICS CURSOR FROM GRAPHICS ORIGIN.
- (2) Y OFFSET OF GRAPHICS CURSOR FROM GRAPHICS ORIGIN.
- (3) X OFFSET OF PICTURE FROM GRAPHICS CURSOR.
- (4) Y OFFSET OF PICTURE FROM GRAPHICS CURSOR.
- (5) GRAPHICS CURSOR.
- (6) GRAPHICS ORIGIN.
- (7) ORIGIN OF SCREEN.

DEFINING TRANSPARENT COLOURS

When you print a picture you may select any colour to be transparent, in which case that colour will not appear when the picture is printed. Transparency can be used to get rid of the unwanted edges of pictures when printing a picture over a background or to achieve effects such as shadow relief.

A colour may be set to be transparent by entering values into the TCOL% array as follows:-

Each of the 16 elements of the TCOL% array is associated with one of the 16 graphics inks. TCOL%(0) is associated with ink 0 and TCOL%(1) with ink 1 through to TCOL%(15) and ink 15. Setting any of these array elements to 0 will cause the ink associated with that element to appear when a picture is printed. Setting the element to ANY non-zero value between 1 and 255 will render the ink transparent.

For the sake of simplicity we suggest you use the values 0 and 1 which should also help you to remember the convention:-

0 = TRANSPARENCY OFF

1 = TRANSPARENCY ON

NOTE: Don't forget to use the prefix "@" and the subscript (0) when you refer to the array in the call to the Picture Printer!

FILTERING COLOURS

The colours in which a picture is printed may be changed from those in which it was saved by entering values into the FCOL% array.

Each of the 16 elements of the array is associated with one of the 16 graphics inks. FCOL%(0) is associated with ink 0 and FCOL%(1) with ink 1 through to FCOL%(15) and ink 15. The contents of each array element dictate the colour in which the ink associated with that element will appear when a picture is printed.

E.g. If FCOL%(3) = 9 then any parts of the picture which are defined in ink 3 will be printed in ink 9.

To modify the colours in which a picture is drawn simply enter the value of the new ink required in the array element associated with the old ink.

Note: You don't have to use the name FCOL% for the filter array you can use any name which is convenient so far as it is defined as an integer array. If you want to print a number of differently coloured versions of a picture you can set up a number of filter arrays containing descriptions of the colours you want and then use the different arrays in separate calls to the Picture Printer.

As with transparent colours don't forget to use the prefix "@" and the subscript \varnothing when you refer to the array in the call to the Picture Printer!

4.6

USING THE PRINTER DUMP ROUTINE

It is possible to produce a print out of your screen picture using the separate Printer Dump routine provided. If you have a cassette system you will find this after PICLIB1 on side B of the cassette.

To use the printer dump routine proceed as follows:-

1. Ensure that the pictures you want to print have been saved to cassette/disk as a SCREEN file.
2. Reset your system.
3. Load and run the printer dump routine. (This may be done by typing RUN"PDUMP").

The program will then prompt you through the sequence of operations required to load and print out the picture of your choice.

